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Efficacy of perioperative chemotherapy with advanced non-small-cell lung cancer

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Background: In advanced non-small-cell lung cancer (NSCLC), the use of combined modality regimens, utilizing chemotherapy, surgery and radiotherapy produces modest improvements in median survival, but overall survival remains poor. We performed a retrospective study of combined modality regimens including prophylactic cranial irradiation (PCI) to evaluated the efficacy on the patients with locally advanced NSCLC.

Methods: 30 patients diagnosed as stage lllA - lllB NSCLC from September 2001 to January 2005, received combined modality regimens. All patients treated with 100 mg/m^2 of cisplatin given for 3 cycles in combination with gemcitabine, docetaxel or paclitaxel neoadjuvant chemotherapy, followed by surgery, and then received cisplatin-based chemotherapy for 3 cycles of adjuvant chemotherapy. Chest radiotherapy was left to the decision of investigator.

Results: 23 patients (76.7%) had stage lllA disease and 7 patients (23.3%) had stage lllB disease. 20 patients received postoperative chest radiotherapy and 12 patients received PCI. The median duration of follow-up was 23 (7-64) months. The median survival was 27 (9-64) months and disease-free survival was 20 (7-64) months. The objective response rate (2CR+25PR) were 90%. The 1-year overall survival rate was 80% and 2-year overall survival rate was 46.7%. Grade 3/4 hematologic toxicities adverse drug reactions (ADRs) of neoadjuvant chemotherapy were neutropenia (n=2) and that of adjuvant chemotherapy were neutropenia (n=3) and thrombocytopenia (n=2). Non-hematologic grade 3/4 ADRs in adjuvant chemotherapy were nausea.

Conclusions: This study demonstrated that perioperative chemotherapy was feasible and resulted in good response and overall survival.

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ERCC1 Expression is one of prognostic factors in completely resected non small-cell lung cancer patients with an adjuvant platinum-based chemotherapy

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Background: Recent several reports demonstrated that CDDP-based adjuvant chemotherapy should be offered as standard care to patients after completely resected early stage (pathological stage IB to II) non-small-cell lung cancer (NSCLC). The cytotoxic effect of the anticancer drug CDDP is principally attributable to the formation of bulky intrastrand platinum-DNA adducts. Removal of these adducts from genomic DNA is mediated by the nucleotide excision repair pathway, a critical element of which for this function is the ERCC1 gene. For advanced NSCLC (inoperable III-IV stage) with chemotherapy combined of cisplatin and gemcitabine, Lord, et al. demonstrated that median overall survival was significantly longer in patients with low ERCC1 expression tumors compared to patients with high expression tumors (61.6 vs. 20.4 weeks). In this study, we investigated whether ERCC1 mRNA expression level is a predictive factor for survival in patients with completely resected NSCLC followed by CDDP-based adjuvant chemotherapy.

Material and Methods: Between February 1991 and December 2001, 86 patients were operated on for NSCLC and received CDDP-based chemotherapy postoperatively at the Tokushima University Hospital. The clinical findings of the patient were shown in the following; male: female=47:11, mean age=63.2, adenocarcinoma: 33 squamous cell carcinoma: 21, stage I: 8, II: 9, III: 37, IV: 4, lobectomy: 47, regimen CDDP+VDS: 42, cycle 1:=34, 2:=21.

Only tumor cells were gotten from paraffin-embedded tumor specimens using laser-captured microdissection (PALM Microlaser Technologies). After RNA isolation, cDNA was prepared from each sample. Relative cDNA quantitation for ERCC1 and an internal reference gene (a-actin) was done using a fluorescence based, real-time detection method (ABI PRISM 7700 Sequence Detection System; TaqMan; Applied Biosystems). The rise of the a-actin signal after cycle 31 using the described conditions indicated an insufficient amount of mRNA present for the subsequent ERCC1 quantitation.

Results: In 58 of paraffin-embedded specimen of 86 patients, ercc1 mRNA expression could be measured. The mean ERCC1 expression, relative to the expression of the internal control housekeeping genea-actin, was 1.29 (range, 0.17 to 3.76). There were no significant associations between ERCC1 levels and any of the factors age (p=0.48), sex (p=0.437), histology histology (squamous cell carcinoma (mean: 1.49) vs. adenocarcinoma: (1.17), p=0.221), and tumor stage (I (1.64) and II (1.54) vs. III (1.19) and IV (0.96); p=0.153). However, there was a tendency that ERCC1 levels was higher in squamous cell carcinoma and early stage tumor. A cut-off value 1.1 of ERCC1 level could segregate into poor and good prognosis subgroups. The 5 year survival rate of patients with high and low ERCC1 was 66.2% and 42.7%, respectively (p=0.0531). The patients with high ERCC1 level showed a favor prognosis compared with those with low ERCC1 level.

Conclusion: Although the patients with low ERCC1 level showed a favor prognosis for advanced NSCLC (inoperable III-IV stage) with CDDP-based chemotherapy, The patients with high ERCC1 level showed a favor prognosis in completely resected NSCLC patients with an adjuvant CDDP-based chemotherapy.

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Anaemia as prognostic and predictive factor of non-small cell lung cancer patients treated with chemo and radiotheraphy – retrospective analysis

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Background: Anaemia is one of the most common symptoms of lung cancer. The incidence of anaemia depends on clinical stage, kind of